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10/500,708	02/08/2005	Peter Gerell	1554-1001	6699

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EXAMINER	
DENG, ANNA CHEN	

ART UNIT	PAPER NUMBER
2191	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,708	GERELL ET AL.	
	Examiner	Art Unit	
	ANNA DENG	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to amendment filed on 2/21/2009.

2. Claims 15-16 have been added.

3. Claims 1-16 are pending.

Response to Amendment

4. The objection to claims 1 and 8 is withdrawn in view of applicant's amendment.

5. The rejection under 35 U.S. C. 112, second paragraph to claims 1-14 is withdrawn in view of applicant's amendment.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 7-8, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breslow et al. USPUB 2007/0058656 A1 (hereinafter Breslow), in view of Sonning et al. USPN 6,717,933 B1 (hereinafter Sonning), in view of Nurmela et al. USPUB 2003/0120622 A1 (hereinafter Nurmela).

Per Claim 1 (currently amended):

Breslow teaches **the program code comprising a plurality of instructions for processing data packets in a communications network** (Breslow, [0012], "a data communication network, …receives data packets"; [0042], "A data packet payload may also carry, for example, network management information and instructions sent by a network administrator to one or more network entities"), **the method comprising:**

dividing the program code into a plurality of sequences, each sequence comprising a number of instructions steps and being configured to perform a certain task on a data packet passing through the communications network (Breslow, [0041], "data messages sent through a digital data communication and other communication network are divided into one or more digital data "packets", [0042], a header portion for carrying address and control information, …uses the address and control information in the header to route the data packet through the network to the intended destination),

defining, based on the program code, a plurality of relocation objects, each relocation object of the plurality of relocation object corresponding to a dependency relationship between two or more of the sequences (Breslow, [0050], "The sequence number 54 in a data packet identifies the position of the data packet in a series of data packets transmitted in a connection…The sequence number 54 assists the destination terminal in correctly reordering the data packets when they are received", emphasis added);

Breslow does not explicitly teach linking program code in a processor instruction memory comprising rows and columns, allocating each sequence to at least one row

and at least one column of the processor instruction memory such that the instruction steps of the sequence are consecutively allocated in the processor instruction memory. However, sonning teaches **linking program code in a processor instruction memory comprising rows and columns** (Sonning, col. 6, lines 52-56, the converter contains a memory means having a predetermined number of columns and rows)**; allocating each sequence to at least one row and at least one column of the processor instruction memory such that the instruction steps of the sequence are consecutively allocated in the processor instruction memory** (Sonning, col. 6, lines 35-56, each data packet are sequentially arranged, comprising the steps of providing a memory means having a number of columns, writing the data symbols of said consecutive data packets into said memory means… consecutive data symbols in respective column portions of K_n rows…).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslow to include providing a processor instruction memory comprising rows and columns; allocating each sequence to a column of the processor instruction memory using the teaching of Sonning. The modification would be obvious because one of ordinary skill in the art would be motivated to provide a converter contains a memory means having a predetermined number of columns and rows, and write means writing the data packets (consisting of sequentially arranged data symbols) into the memory (Sonning, col. 6, lines 52-56)

The combination of Breslow and Sonning does not explicitly teach linking a first sequence to a second sequence by using a defined relocation object corresponding to a dependency relation ship between the first sequence and the second sequence to define a branch from the first sequence to the second sequence. However Nurmela teaches **linking a first sequence to a second sequence by using a defined relocation object corresponding to a dependency relation ship between the first sequence and the second sequence to define a branch from the first sequence to the second sequence** (Nurmela, FIG. 6A, step 608 and related text, for example, [0053], a JUMP action in firewalls defines the rule to which to jump, [0061], the procedure jumps to the row indicated by the previously observed element and the element found in the column therein is observed…The some other column may be the next column or there may be some complex algorithm for finding the optimal column to jump to).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslow and Sonning to include by means of the relocation object providing information that there is an alternative sequence to jump to at the instruction at which the relocation object is located using the teaching of Nurmela. The modification would be obvious because one of ordinary skill in the art would be motivated to provide a method for finding in a rule base, a rule matching a data packet and finding an element with the smallest label that is present in a plurality of finite subsets of a set containing finite number of sequentially labeled elements (Numela, [0010]).

Per Claim 7:

The rejection of claim 1 is incorporated, and further, Breslow teaches **the step of linking at least one sequence, obtained by the step of dividing the program code, to a sequence, obtained by dividing another program code** (Breslow, [0116], "For data packets having the same source identifier at a block 164 the destination terminal reorders the primary data packets according to their respective sequence numbers…reordering may also be accomplished by creating a linked list or other reference that readily sets forth the correct order of the primary data packets").

Per Claim 15 (new):

The rejection of claim 1 is incorporated, and further, is performed by allocating each instruction step of the sequence to the same row but in different columns of the processor instruction memory (Sonning, for example, in col. 6, lines 35-56, teaches each data packet are sequentially arranged, comprising the steps of providing a memory means having a number of columns, writing the data symbols of said consecutive data packets into said memory means… consecutive data symbols in respective column portions of K_n rows. Here, Sonning teaches *the same columns in different row*. It would obvious to one of ordinary skill in the art at the time of invention to implement Sonning's memory to allocate data in the same row but in different columns.

Per Claims 8, 14, and 16:

These are system versions of the claimed method discussed above (claims 1, 7, and 15, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

8. Claims 2-6, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breslow et al. USPUB 2007/0058656 A1 (hereinafter Breslow), in view of Sonning et al. USPN 6,717,933 B1 (hereinafter Sonning), in view of Nurmela et al. USPUB 2003/0120622 A1 (hereinafter Nurmela), and further in view of Wagner, USPUB 2003/0023388 A1 (hereinafter Wagner).

Per Claim 2:

The rejection of claim 1 is incorporated, and further, Breslow **teaches base on at least some of the sequences and at least some of the relocation objects** (Brewslow, [0041], "data messages sent through a digital data communication and other communication network are divided into one or more digital data "packets"; [0050], "The sequence number 54 in a data packet identifies the position of the data packet in a series of data packets transmitted in a connection…The sequence number 54 assists the destination terminal in correctly reordering the data packets when they are received"); the combination of Breslow, Sonning, and Nurmela does not explicitly teach **the steps of forming at least one directed graph, and determining a longest execution path through the directed graph**. However, Wagner teaches **the steps of**

forming at least one directed graph, (Wagner, [0061], "a directed graph or digraph is a mathematical object consisting of nodes and directed edges. In a graph representation of a genetic network, the nodes of the graph correspond to genes, and two genes, say gene 1 and gene 2, are connected by a directed edge") and determining a longest execution path through the directed graph (Wagner, [0139]-[0142], "it can be useful to determine the longest path connecting two genes, such as for comparison to other paths or to use to determine the path …The longest path algorithm presented herein rests on the following tow propositions…").

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslow, Sonning, and Nurmela to include "**the steps of forming at least one directed graph, and determining a longest execution path through the directed graph**" using the teaching of Wagner. The modification would be obvious because one of ordinary skill in the art would be motivated to apply graph theory mathematics to the field of genetic networks to produce adjacency lists that describe the genetic interactions of gene networks based on gene perturbation data (Wagner, [0006]).

Per Claim 3:

The rejection of claim 2 is incorporated, and further, Breslow teaches **the step of entering at least one state preserving operation in the instruction memory** (Breslow, [0054], "unpacking is performed by copying the secondary data packets from the primary packet payload to an output queue implemented in memory"); the

combination of Breslow, sonning, and Nurmela does not explicitly teach **so as to make at least two execution paths equally long**. However, Wagner teaches **so as to make at least two execution paths equally long** (Wagner, [0109], "the longest possible chain of nested calls of PRUNE_ACC is (n-1) if G has n nodes. For an node I calling PRUNE_ACC, the number of nested calls is at most equal to the length of the longest path starting at I").

Per Claim 4:

The rejection of claim 3 is incorporated, and further, Breslow teaches **the step of moving at least one sequence in the instruction memory** (Breslow, [0115]-[0116], "separating the primary data packets may be accomplished by directing the received data packets into separate allocated sections of memory…While reordering may be accomplished by allocating a separate memory space and copying the primary data packets in proper order into that memory space…").

Per Claim 5:

The rejection of claim 3 is incorporated, and further, Breslow teaches **the step of entering at least one state preserving operation in the instruction memory** (Breslow, [0054], "unpacking is performed by copying the secondary data packets from the primary packet payload to an output queue implemented in memory"); the combination of Breslow, Sonning, and Nurmela does not explicitly teach **the length of the at least two execution paths correspond to the longest execution path**.

However, Wagner teaches **the length of the at least two execution paths correspond to the longest execution path** (Wagner, [0142], "the longest path p(u,w) between u and w, … is equivalent to the sum over the longest paths p(u,v)+p(v,w), maximized over all v from which w is accessible").

Per Claim 6:

The rejection of claim 1 is incorporated, the combination of Breslow, Sonning, and Nurmela does not explicitly teach comprising **the step of determining the existence of any circle reference by any of the relocation objects between any of the sequences**. However, Wagner teaches **the step of determining the existence of any circle reference by any of the relocation objects between any of the sequences** (Wagner, [10109]-[0110], "It contains of two loops…the longest possible chain of nested calls of PRUNE_ACC is (n-1) if G has n nodes").

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Breslowm, Sonning, Nurmela to include "the step of determining the existence of any circle reference by any of the relocation objects (10) between any of the sequences (7)" using the teaching of Wagner. The modification would be obvious because one of ordinary skill in the art would be motivated to apply graph theory mathematics to the field of genetic networks to produce adjacency lists that describe the genetic interactions of gene networks based on gene perturbation data (Wagner, [0006]).

Per Claims 9-13:

These are system versions of the claimed method discussed above (claims 2-6, respectively), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Response to Arguments

9. Applicant's arguments filed 2/12/2009 have been fully considered but they are not persuasive.

Applicant argued:

The combination of Breslow, Sonning, and Nurmela does not teaches a method and a system for linking of program code in a processor instruction memory, the program code comprising a plurality of instructions for processing data packets in a communications network as defined by the amended claims 1 and 8 respectively.

Examiner response:

In response to applicant's arguments, the recitation “a method and a system for linking of program code in a processor instruction memory, the program code comprising a plurality of instructions for processing data packets in a communications network” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body

of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Even the recitation "a method and a system for linking of program code in a processor instruction memory, the program code comprising a plurality of instructions for processing data packets in a communications network" occurs in the preamble, the combination of Breslow, Sonning, and Nurmela does teach it. Sonning teaches **linking program code in a processor instruction memory comprising rows and columns** (Sonning, col. 6, lines 52-56, the converter contains a memory means having a predetermined number of columns and rows), and Breslow teaches **the program code comprising a plurality of instructions for processing data packets in a communications network** (Breslow, [0012], "a data communication network, …receives data packets"; [0042], "A data packet payload may also carry, for example, network management information and instructions sent by a network administrator to one or more network entities").

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136 (a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Deng whose telephone number is 571-272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anna Deng/

Examiner, Art Unit 2191

4/23/2009

/Wei Y Zhen/

Supervisory Patent Examiner, Art Unit 2191